What is claimed is:

1. A method for determining the presence or absence of oxidative reactions catalyzed by at least one enzyme in a solution comprising:

(i) contacting said solution with a sensor composition which comprises a luminescent compound that exhibits a change in luminescent property, when irradiated with light containing wavelengths which cause said compound to luminesce, upon exposure to oxygen, wherein the presence of the sensor composition is non-destructive to the enzyme(s);

(ii) irradiating said sensor composition with light containing wavelengths which cause said luminescent compound to luminesce;

(iii) measuring or visually observing the luminescent light intensity from said luminescent compound while irradiating said sensor compound with said light;

(iv) comparing said measurement to that of a control not containing enzyme(s) capable of catalyzing oxidative reactions, wherein said control is selected from the group consisting of: a reagent control not in contact with said enzyme(s) and a calculated threshold, wherein a change in luminescent property relative to the luminescent property of the control is indicative of the presence of said enzyme(s); and

(v) in the event that no such increase is measured or observed, repeat steps (ii), (iii), and (iv) as needed, to determine the presence or absence of said enzyme(s) in said solution.

2. The method of Claim 1 wherein said luminescent compound is contained within a matrix which is relatively impermeable to water and non-gaseous solutes, but which has a high permeability to oxygen.

3. The method of Claim 2 wherein said matrix is a rubber or plastic matrix.

4. The method of Claim 2 wherein said matrix is a silicone rubber matrix.

5. The method of Claim 2 wherein said luminescent compound is adsorbed on solid silica particles.

6. The method of Claim 1 wherein said luminescent compound is a tris-4, 7-diphenyl-1, 10-phenanthroline ruthenium (II) salt.

7. The method of Claim 6 wherein said luminescent compound is tris-4, 7-diphenyl-1, 10-phenanthroline ruthenium (II) chloride.

8. The method of Claim 1 wherein said luminescent compound is a tris-2, 2'-bipyridyl ruthenium (II) salt.

9. The method of Claim 8 wherein said luminescent compound is tris-2, 2'-bipyridyl ruthenium (II) chloride hexahydrate.

10. The method of Claim 1 wherein said luminescent compound is 9, 10-diphenyl anthracene.

11. The method of Claim 1 wherein said solution is isolated from atmospheric oxygen wherein said solution is contained in a closed system.

12. The method of Claim 1 wherein said solution is exposed to atmospheric oxygen.

13. The method of Claim 1 wherein, in step (i), the solution is also contacted with an effective concentration of one or more biomaterials.

14. The method of Claim 1 where the oxidative reactions are performed by metabolic enzymes in liver cells or cells which have been modified to express metabolic enzymes.

15. The method of Claim 1 where the oxidative reactions are performed by several enzymes which together comprise a subcellular system.

16. The method of Claim 15 where the enzymes include a cytochrome P450 and a P450 reductase.

17. A method for determining the effects of at least one drug, toxin or chemical on at least one enzyme which catalyzes oxidative reactions comprising:

(i) preparing a reaction mixture of said enzyme(s);

(ii) contacting said reaction mixture with a sensor composition which comprises a luminescent compound that exhibits a change in luminescent property, when irradiated with light containing wavelengths which cause said compound to luminesce, upon exposure to oxygen, wherein the presence of the sensor composition is non-destructive to the enzyme(s);

(iii) admixing with said reaction mixture a quantity of said drug, toxin or chemical;

(iv) irradiating said sensor composition with light containing wavelengths which cause said luminescent compound to luminesce;

(v) measuring or visually observing the change in luminescent property from said luminescent compound while irradiating said sensor compound with said light; and

(vi) comparing said measurement to that of a control wherein said control is selected from the group consisting of: a reagent control not in contact with said enzyme(s) or the drug, toxin or chemical; a reagent control in contact with said enzyme(s) but not in contact with the drug, toxin or

chemical and a calculated threshold, wherein a change in luminescent property relative to the control is indicative of reaction of the drug, toxin or chemical to the enzyme(s); and

(vii) in the event that no such change is measured or observed, repeat steps (iv), (v) and (vi), as needed, to determine the effects of the drug, toxin or chemical on the enzyme(s).

18. The method of Claim 17 wherein said luminescent compound is contained within a matrix which is relatively impermeable to water and non-gaseous solutes, but which has a high permeability to oxygen.

19. The method of Claim 18 wherein said matrix is a rubber or plastic matrix.

20. The method of Claim 18 wherein said matrix is a silicone rubber matrix.

21. The method of Claim 18 wherein said luminescent compound is adsorbed on solid silica particles.

22. The method of Claim 17 wherein said luminescent compound is a tris-4, 7-diphenyl-1, 10-phenanthroline ruthenium (II) salt.

23. The method of Claim 22 wherein said luminescent compound is tris-4, 7-diphenyl-1, 10-phenanthroline ruthenium (II) chloride.

24. The method of Claim 17 wherein said luminescent compound is a tris-2, 2'-bipyridyl ruthenium (II) salt.

25. The method of Claim 24 wherein said luminescent compound is tris-2, 2'-bipyridyl ruthenium (II) chloride hexahydrate.

26. The method of Claim 17 wherein said luminescent compound is 9, 10-diphenyl anthracene.

27. The method of Claim 17 wherein said reaction mixture is isolated from atmospheric oxygen.

28. The method of Claim 17 wherein said reaction mixture is exposed to atmospheric oxygen.

29. The method of Claim 17 wherein, in step (ii), the reaction mixture is also contacted with an effective concentration of one or more biomaterials.

30. The method of Claim 17 where the oxidative reactions are performed by metabolic enzymes in liver cells or cells which have been modified to express metabolic enzymes.

31. The method of Claim 17 where the oxidative reactions are performed by several enzymes which together comprise a subcellular system.

32. The method of Claim 31 where the enzymes include a cytochrome P450 and a P450 reductase.

33. A method for quantifying at least one enzyme capable of catalyzing oxidative reactions in a solution comprising:

(i) contacting said solution with a sensor composition which comprises a luminescent compound that exhibits a change in luminescent property, when irradiated with light containing wavelengths which cause said compound to luminesce, upon exposure to oxygen, wherein the

presence of the sensor composition is non-destructive to the enzyme(s);

(ii) irradiating said sensor composition with light containing wavelengths which cause said luminescent compound to luminesce;

(iii) measuring or visually observing the change in luminescent property from said luminescent compound while irradiating said sensor compound with said light;

(iv) comparing said measurement to that of a control not containing said enzyme(s), wherein said control is selected from the group consisting of: a reagent control not in contact with said enzyme(s) and a calculated threshold, wherein a change in luminescent property relative to the luminescent property of the control is indicative of the presence of said enzyme(s); and

(v) in the event that no such increase is measured or observed, repeat steps (ii), (iii), and (iv) as needed, to quantify said enzyme(s) in said solution.

34. The method of Claim 33 wherein said luminescent compound is contained within a matrix which is relatively impermeable to water and non-gaseous solutes, but which has a high permeability to oxygen.

35. The method of Claim 34 wherein said matrix is a rubber or plastic matrix.

36. The method of Claim 34 wherein said matrix is a silicone rubber matrix.

37. The method of Claim 34 wherein said luminescent compound is adsorbed on solid silica particles.

38. The method of Claim 33 wherein said luminescent compound is a tris-4, 7-diphenyl-1, 10-phenanthroline ruthenium (II) salt.

39. The method of Claim 38 wherein said luminescent compound is tris-4, 7-diphenyl-1, 10-phenanthroline ruthenium (II) chloride.

40. The method of Claim 33 wherein said luminescent compound is a tris-2, 2'-bipyridyl ruthenium (II) salt.

41. The method of Claim 40 wherein said luminescent compound is tris-2, 2'-bipyridyl ruthenium (II) chloride hexahydrate.

42. The method of Claim 33 wherein said luminescent compound is 9, 10-diphenyl anthracene.

43. The method of Claim 33 wherein said solution is isolated from atmospheric oxygen wherein said solution is contained in a closed system.

44. The method of Claim 33 wherein said solution is exposed to atmospheric oxygen.

45. The method of Claim 33 wherein, in step (i), the solution is also contacted with an effective concentration of one or more biomaterials.

46. The method of Claim 33 where the oxidative reactions are performed by metabolic enzymes in liver cells or cells which have been modified to express metabolic enzymes.

47. The method of Claim 33 where the oxidative reactions are performed by several enzymes which together comprise a subcellular system.

48. The method of Claim 47 where the enzymes include a cytochrome P450 and a P450 reductase.

49. A method for determining the presence or absence of oxidative reactions catalyzed by at least one enzyme in a solution comprising:

(i) placing said solution in a container in which said fluid is substantially isolated from atmospheric oxygen and placing within said container, but not in direct contact with said fluid, a sensor composition which comprises a luminescent compound that exhibits a change in luminescent property, when irradiated with light containing wavelengths which cause said compound to luminesce, upon exposure to oxygen, wherein the presence of the sensor composition is non-destructive to the enzyme(s);

(ii) irradiating said sensor composition with light containing wavelengths which cause said luminescent compound to luminesce;

(iii) measuring or visually observing the luminescent light intensity from said luminescent compound while irradiating said sensor compound with said light;

(iv) comparing said measurement to that of a control not containing said enzyme(s), wherein said control is selected from the group consisting of: a reagent control not in contact with said enzyme(s) and a calculated threshold, wherein a change in luminescent property relative to the luminescent property of the control is indicative of the presence of said enzyme(s); and

(v) in the event that no such increase is measured or observed, repeat steps (ii), (iii), and (iv) as needed, to determine the presence or absence of said enzyme(s) in said solution.

50. The method of Claim 49 wherein said luminescent compound is contained within a matrix which is relatively impermeable to water and non-gaseous solutes, but which has a high permeability to oxygen.

51. The method of Claim 50 wherein said matrix is a rubber or plastic matrix.

52. The method of Claim 50 wherein said matrix is a silicone rubber matrix.

53. The method of Claim 50 wherein said luminescent compound is adsorbed on solid silica particles.

54. The method of Claim 49 wherein said luminescent compound is a tris-4, 7-diphenyl-1, 10-phenanthroline ruthenium (II) salt.

55. The method of Claim 54 wherein said luminescent compound is tris-4, 7-diphenyl-1, 10-phenanthroline ruthenium (II) chloride.

56. The method of Claim 49 wherein said luminescent compound is a tris-2, 2'-bipyridyl ruthenium (II) salt.

57. The method of Claim 56 wherein said luminescent compound is tris-2, 2'-bipyridyl ruthenium (II) chloride hexahydrate.

58. The method of Claim 49 wherein said luminescent compound is 9, 10-diphenyl anthracene.

59. The method of Claim 49 wherein, in step (i), the solution is also contacted with an effective concentration of one or more biomaterials.

60. The method of Claim 49 where the oxidative reactions are performed by metabolic enzymes in liver cells or cells which have been modified to express metabolic enzymes.

61. The method of Claim 49 where the oxidative reactions are performed by several enzymes which together comprise a subcellular system.

62. The method of Claim 61 where the enzymes include a cytochrome P450 and a P450 reductase.

63. A method for determining the effects of at least one drug or toxin on at least one enzyme which catalyzes oxidative reactions comprising:

(i) preparing a reaction mixture of said enzyme(s);

(ii) placing said reaction mixture in a container in which said broth is substantially isolated from atmospheric oxygen and placing within said container, but not in direct contact with said broth, a sensor composition which comprises a luminescent compound that exhibits a change in luminescent property, when irradiated with light containing wavelengths which cause said compound to luminesce, upon exposure to oxygen, wherein the presence of the sensor composition is non-destructive to the enzyme(s);

(iii) admixing with said reaction mixture a quantity of said drug, toxin or chemical;

(iv) irradiating said sensor composition with light containing wavelengths which cause said luminescent compound to luminesce;

(v) measuring or visually observing the change in luminescent property from said luminescent compound while irradiating said sensor compound with said light; and

(vi) comparing said measurement to that of a control wherein said control is selected from the group consisting of: a reagent control not in contact

with said enzyme(s) or the drug, toxin or chemical; a reagent control in contact with said enzyme(s) but not in contact with the drug, toxin or chemical and a calculated threshold, wherein a change in luminescent property relative to the control is indicative of reaction of the quantity of drug, toxin or chemical to the enzyme(s); and

(vii) in the event that no such change is measured or observed, repeat steps (iv), (v) and (vi), as needed, to determine the effects of the drug, toxin or chemical on the enzyme(s).

64. The method of Claim 63 wherein said luminescent compound is contained within a matrix which is relatively impermeable to water and non-gaseous solutes, but which has a high permeability to oxygen.

65. The method of Claim 64 wherein said matrix is a rubber or plastic matrix.

66. The method of Claim 64 wherein said matrix is a silicone rubber matrix.

67. The method of Claim 64 wherein said luminescent compound is adsorbed on solid silica particles.

68. The method of Claim 63 wherein said luminescent compound is a tris-4, 7-diphenyl-1, 10-phenanthroline ruthenium (II) salt.

69. The method of Claim 68 wherein said luminescent compound is tris-4, 7-diphenyl-1, 10-phenanthroline ruthenium (II) chloride.

70. The method of Claim 63 wherein said luminescent compound is a tris-2, 2'-bipyridyl ruthenium (II) salt.

71. The method of Claim 70 wherein said luminescent compound is tris-2, 2'-bipyridyl ruthenium (II) chloride hexahydrate.

72. The method of Claim 63 wherein said luminescent compound is 9, 10-diphenyl anthracene.

73. The method of Claim 63 wherein, in step (ii), an effective concentration of one or more biomaterials is also placed in said container.

74. The method of Claim 63 where the oxidative reactions are performed by metabolic enzymes in liver cells or cells which have been modified to express metabolic enzymes.

75. The method of Claim 63 where the oxidative reactions are performed by several enzymes which together comprise a subcellular system.

76. The method of Claim 75 where the enzymes include a cytochrome P450 and a P450 reductase.

77. A method for quantifying at least one enzyme capable of catalyzing oxidative reactions in a solution comprising:

(i) placing said solution in a container in which said fluid is substantially isolated from atmospheric oxygen and placing within said container, but not in direct contact with said fluid, a sensor composition which comprises a luminescent compound that exhibits a change in luminescent property, when irradiated with light containing wavelengths which cause said compound to luminesce, upon exposure to oxygen, wherein the presence of the sensor composition is non-destructive to the enzyme(s);

(ii) irradiating said sensor composition with light containing wavelengths which cause said luminescent compound to luminesce;

(iii) measuring or visually observing the change in luminescent property from said luminescent compound while irradiating said sensor compound with said light;

(iv) comparing said measurement to that of a control not containing said enzyme(s), wherein said control is selected from the group consisting of: a reagent control not in contact with said enzyme(s) and a calculated threshold, wherein a change in luminescent property relative to the luminescent property of the control is indicative of the presence of said enzyme(s); and

(v) in the event that no such increase is measured or observed, repeat steps (ii), (iii), and (iv) as needed, to quantify said enzyme(s) in said solution.

78. The method of Claim 77 wherein said luminescent compound is contained within a matrix which is relatively impermeable to water and non-gaseous solutes, but which has a high permeability to oxygen.

79. The method of Claim 78 wherein said matrix is a rubber or plastic matrix.

80. The method of Claim 78 wherein said matrix is a silicone rubber matrix.

81. The method of Claim 78 wherein said luminescent compound is adsorbed on solid silica particles.

82. The method of Claim 77 wherein said luminescent compound is a tris-4, 7-diphenyl-1, 10-phenanthroline ruthenium (II) salt.

83. The method of Claim 82 wherein said luminescent compound is tris-4, 7-diphenyl-1, 10-phenanthroline ruthenium (II) chloride.

84. The method of Claim 77 wherein said luminescent compound is a tris-2, 2'-bipyridyl ruthenium (II) salt.

85. The method of Claim 84 wherein said luminescent compound is tris-2, 2'-bipyridyl ruthenium (II) chloride hexahydrate.

86. The method of Claim 77 wherein said luminescent compound is 9, 10-diphenyl anthracene.

87. The method of Claim 77 wherein, in step (i), the solution is also contacted with an effective concentration of one or more biomaterials.

88. The method of Claim 77 where the oxidative reactions are performed by metabolic enzymes in liver cells or cells which have been modified to express metabolic enzymes.

89. The method of Claim 77 where the oxidative reactions are performed by several enzymes which together comprise a subcellular system.

90. The method of Claim 89 where the enzymes include a cytochrome P450 and a P450 reductase.